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THE RAT: A HEALTH MENACE THAT SHOULD BE ERADICATED

Public health authorities everywhere recognize the increasing sanitary and economic menace of the rat. As the active agent in the spread of bubonic plague, the rat is responsible for the almost world-wide prevalence of this disease which, during the twenty-year period ended in 1923, killed over 11,000,000 people in India alone.

Since the beginning of the Hong Kong epidemic of 1894, bubonic plague has been distributed through channels of international commerce to all parts of the world where environmental conditions are favorable to the breeding of rats and rat fleas.

Notwithstanding the depredations of rats, annually costing the people of the United States approximately \$200,000,000 for food consumed and a like amount or more for losses sustained through the wanton destructiveness of the animal, the general public views the situation with the utmost complacency. This leads inevitably to the conclusion that mankind is either unaware of the teeming rat life and its effects upon the body politic, or is completely indifferent to the dangers and to the cost of feeding and providing recreation for these millions of parasitic rodents.

This general unawareness of a condition which has assumed the proportions of a grave national problem is also proof of the marvelous resourcefulness and cunning of the rat. What other dangerous and destructive animal could have lived so long in such close proximity to man without having made itself so seriously obnoxious as to excite a wave of resentment leading to speedy extermination?

The public should be brought to realize that if the extraordinarily prolific breeding of rats was not constantly controlled by disease, natural enemies, and the cannibalistic tendencies of the animal itself, the world would soon be overrun and man himself forced to fight a losing battle for scraps of food.

To combat the rat successfully man must become familiar with its habits of living and breeding and know its dietary preferences. Methods of combat must be studied, and the proper application of the most efficient of these must be better understood. In the age-old fight for survival, the rat has learned lessons of sagacity, patience, and

agility which fit it well for a contest in which man must exercise his ingenuity to the utmost if he would win.

Direct measures of attack have but a limited usefulness in the hands of the public. Trapping with snap or cage traps, the use of poison baits, the aggression of such natural antagonists as dogs, cats, ferrets, weasles, etc., and fumigation with poisonous gases, all may be resorted to; but, with the exception of trapping, they can not be recommended for use by the inexperienced householder. Rat-suppressive measures, if universally prosecuted, will do more to make life hazardous for the pest than the application of destructive agents. The most effective suppressive measure is to separate the rat from its customary food supply. This procedure should be followed in most scrupulous detail in the home, the place of business, and wherever foodstuffs are stored or handled. Bulk foods in the home should be kept in rat-proof containers and every occupied residential premises should be equipped with a rat-tight garbage can. Garbage dumps should be eliminated from every community, and garbage and offal from slaughterhouses should be burned.

Rats require safe covert when carrying on their ordinary affairs, and the elimination of hiding places makes life more difficult and dangerous. The brown rat (*Rattus norvegicus*) prefers to live at or below the level of the ground, and the female will burrow beneath plank flooring or concrete paving with exposed edges to find a safe location for the nest. The roof rat (*Rattus alexandrinus*) and the black, or "ship," rat (*Rattus rattus*) look for double walls and dusty attics wherein they find protection from their arch enemy, the more ferocious but less agile brown, or "sewer," rat. The elimination of the hiding places customarily frequented by these animals restricts breeding to an extent second only to starvation, so it will pay the public well to keep the rat on the run.

In residential and other shore structures and in sea-going vessels certain architectural changes and modifications are necessary effectually to prevent the rat from finding the quiet harboring places essential to its welfare. The elimination of such harborages, together with the permanent blocking or protecting of inclosed wall or ceiling spaces which may not be removed, are measures collectively designated as "rat proofing." Special publications of the United States Public Health Service deal with the details of "rat proofing" of shore structures (Public Health Bulletin No. 180) and with the elimination of rat hiding places on shipboard (Public Health Reprint No. 1030). Copies of these publications may be secured by addressing the Surgeon General, United States Public Health Service, Washington, D. C.

Any estimate of the number of rats in a given community must, of course, be in the nature of an approximation. Conservative figures

place the rat population of the United States at approximately 120,000,000, or one rat per person. In certain places the ratio is probably much higher, while in localities where rodents are systematically fought, the rat population may be reduced to a level at which the animal no longer menaces the health and economic welfare of the people.

The Public Health Service has recently issued Public Health Bulletin No. 180,¹ "The Rat: Arguments for its elimination and methods for its destruction," which contains a plea for the public to do its part in eliminating the most dangerous and expensive of the parasitic pests of mankind. A general determination to rout the rat may be strengthened by the thought that the beast has nothing to recommend it. Modern sanitation has removed its only legendary claim to virtue, the questionable distinction of being a scavenger. While available, copies of the bulletin may be had by addressing the Surgeon General, United States Public Health Service, Washington, D. C.

EXTRA SESSION OF THE PERMANENT COMMITTEE OF THE INTERNATIONAL OFFICE, MAY, 1928

The Permanent Committee of the International Office of Public Hygiene held its extra session of 1928 at Paris from May 7-16.

Those present were Messrs. Velghe (Belgium), president; van Campenhout (Belgian Congo); C. Chagas (Brazil); Madsen (Denmark); Shahin Pacha (Egypt); Taliaferro Clark (United States of America); Barrère (France); Duchêne (French West Africa); Audibert (French Indo-China); L'Herminier (Madagascar); G. S. Buchanan (Great Britain); J. D. Graham (British India); C. L. Park (Australia); H. B. Jeffs (Canada); S. P. James (New Zealand); P. G. Stock (Union of South Africa); Ph. Copanaris (Greece); Boyd Barrett (Irish Free State); A. Lutrario (Italy); S. Kusama (Japan); Praum (Luxemburg); Colombani (Morocco); Roussel-Despieres (Monaco); H. M. Gram (Norway); N. M. Josephus Jitta (Netherlands); W. de Vogel (Netherlands Indies); Mimbela (Peru); Djavad Asthiany (Persia); W. Chodzko (Poland); Ricardo Jorge (Portugal); Ionesco-Mihaesti (Rumania); Yoannovitch (Serbian, Croatian and Slovene State); C. Kling (Sweden); L. Prochazka (Czechoslovakia); de Navailles (Tunisia); Galib Ata (Turkey); Ssyssine (Union of Soviet Socialist Republics); Jose Scoseria (Uruguay); and M. Pottevin, Director of the International Office of Public Hygiene.

There were also present as participants at the sessions of the committee, or only at certain of them, Surg. Gen. Hugh S. Cumming, United States Public Health Service, director of the Pan-American

¹Revision of P. H. B., No. 103.

Sanitary Bureau; Doctor Rajchman, medical director of the section of hygiene of the League of Nations; Prof. A. Calmette, assistant director of the Pasteur Institute; and the Hon. A. L. Hoops, M. D., D. P. H., principal medical officer of the Straits Settlements.

I

The committee continued the discussion of questions relative to the application of the International Sanitary Convention. The convention of Paris of June 21, 1926, having been already ratified by a considerable number of powers, the service of the notifications and communications provided for, in particular, by articles 1, 2, 3, 4, and 6 (third paragraph), was more carefully organized, so as to limit to information of an urgent character the transmissions effected immediately and directly by the International Office of Public Hygiene to the diplomatic missions in Paris and to the chief health authorities of the signatory countries.

The text of the arrangement decided upon by the office, by virtue of article 7 of the convention and in conformity with the views already exchanged at the time of the former sessions with the Pan American Sanitary Bureau of Washington, for the execution of the obligations which devolve upon it, notably in regard to that which concerns the notifications and other communications provided for, was definitely adopted.

The model for the certificate of deratization or of exemption from deratization prepared by the office under the terms of article 28 of the convention of 1926 and definitely established in November of 1927, was officially transmitted to the signatory Governments; two countries have already adopted it for the service of their ports—France and Great Britain. Instructions have been sent to the sanitary authorities of the English ports for the delivery of the certificates. In order to avoid, as far as possible, difficulties between one country and another concerning the value of the certificates, the committee decided to address to the Governments a request that they designate to the office the ports qualified by them to deliver these certificates, this designation to constitute a primordial guaranty.

The ports thus designated will be mentioned in the International Sanitary Nautical Almanac, the preparation of which is carried out under the supervision of the office, in execution notably of articles 14, 28, and 50 of the convention, and which is to include information regarding the organization of the ports, the quarantine stations, etc.

Recent preliminary statements intended for this publication have been received from Egypt, Algeria, New Zealand, and French Indo-China.

In the Almanac there will also be presented the information which the office gathers concerning the tariffs of the sanitary taxes collected in the different countries for quarantine operations.

The committee declared itself in accord with the resolutions adopted by the International Radiotelegraphic Conference of Washington, concerning the signaling of ships in relation to the quarantine operations, as to the number and the significance of the day signals. As to night signaling, taking up again, at the request of the conference and on the proposal of the British Government, the investigation of the question, it was considered that, to avoid confusion, a single signal, of which the signification shall have been indicated, might answer the need of the quarantine services.

As to the employment of wireless messages for the quarantine operations, the committee maintained the point of view which it had taken in its preceding session, which is, that unless it is possible to give to them some obligatory force in international relations, declarations by wireless before arrival should be confirmed not only in the interest of the service of the ports but in that of the shipping as well. It was decided to address to the Governments a recommendation in this sense, indicating the method which appeared most adequate for formulating the messages uniformly. The committee, on the other hand, commenced an investigation as to the conditions under which wireless is utilized by the quarantine services of the different countries.

The question, with which the preceding one is closely connected in certain particulars, as to the qualification and the status of physicians on board, will not be the subject of a report until the next session of the committee.

The committee has received information and documents on the application—particularly in Morocco, in Poland, and Greece—of the Arrangement of Brussels of December 1, 1924, relative to the facilities to be given to seamen of the merchant marine for the treatment of venereal diseases.

It pointed out the fact that the information concerning the manner in which the treatment is to be continued from port to port would be given in the "Medical Instruction for Ships not having a Ship's Doctor," an international model of which has been prepared, in agreement with the International Office of Public Hygiene, by the League of Red Cross Societies. The committee insisted upon the importance which should be given in such a document to the section relating to shipboard hygiene, to prophylaxis of diseases, and especially to those diseases subject to quarantine, etc.

II

The committee approved the annual report of the health organization of the League of Nations for 1927. It also received the communication of the resolutions adopted in the twelfth session of the health committee of the League of Nations, held at Geneva, April 30 to May 5, 1928.

It examined the technical report of the Committee of Pharmacological Experts, which, as previously in analogous circumstances, it had charged with examining the request for advice addressed to it by the said committee on the point as to whether the provisions of the Opium Convention of Geneva, of 1925, were to be made applicable to dilauidide, to benzoyl morphine, and to the esters of morphine in general. With this question was joined that, referred also to the office by the health committee, as to whether certain preparations of dicodide might not, on the contrary, be excepted from the application of these requirements. The committee approved the conclusions formulated in the report, which were transmitted to the Health Committee of the League of Nations.

The committee decided to accept the adhesion of the International Office of Public Hygiene to the International Cooperative Agricultural Commission, instituted at the International Institute of Agriculture at Rome; and the committee designated the representative of the office on this commission.

III

The session of May, 1928, was of particular interest because of the number and the importance of both the subjects touched upon and the facts and ideas set forth.

A general view of yellow fever in West Africa was presented by the detailed recitals of the epidemics which occurred from 1926 to 1928 in the British, French, and Belgian territories. All these epidemics had terminated by April, 1928. They have given occasion for very important epidemiological, clinical, and bacteriological studies. In connection with the last-named studies especially, thanks to the work of the members of the Rockefeller Yellow Fever Commission and the Rockefeller Institute at Lagos and at Accra, the susceptibility of the Asiatic monkey, *Macacus rhesus*, to the virus of yellow fever has been established; the rôle of *Leptospira icteroides* in the pathogeny of yellow fever has been definitely discarded; the conservation of the virus of yellow fever in the blood or in fragments of infected liver has been accomplished in refrigerated tubes; the penetration of the virus through the healthy skin has been demonstrated. From the clinical point of view the importance of albuminuria for the tracing of abortive cases has been brought out. From the epidemiological point of view endemic foci of yellow fever have been discovered, notably on the Gold Coast and in Nigeria, and sometimes even more than 100 kilometers from the coast. The danger of the persistence of abortive forms in the native populations has led the sanitary administrations to consider as a measure of protection of greatest importance the complete segregation of the European settlements and the native settlements. The existence of indigenous endemic foci is the more

to be dreaded because the *Aedes aegypti* is very widespread; it exists in numerous interior regions of the Belgian Congo—regions where the mosquito swarms all the year and from which the disease might reach the East Coast of Africa and the Asiatic territories. The menace is the more serious, although yellow fever is unknown in the Far East, because of the fact that the specimens of *Aedes aegypti* coming from the Netherlands Indies can in nowise be distinguished from those from Cuba.

Two epidemic waves of cholera affected British India in 1927, one in the Presidency of Bombay, the other in the Bengal. Anticholera vaccination, recommended in an active propaganda of the sanitary authorities, was received with eagerness by the population. Very interesting experiments were made in different regions by Doctors d'Herelle, Malone, and Lahiri, under the patronage of the Indian Medical Service, on the rôle and the use of bacteriophages. It appeared that the spontaneous cure of cholera was related to the presence and the degree of activity of bacteriophage in the intestines of the patient; that bacteriophage, absent from water supplies during periods when cholera was not prevalent, became frequent there with the cessation of epidemics. The attempts at treatment of cholera by the administration of bacteriophage in the water supplies have given very encouraging results.

A little episode which happened in Batavia at the close of the year 1927 has afforded information of several kinds: A few cases of cholera, at first overlooked, developed on a boat leaving a port which was officially and legally clean (indemne). Touching at the port of Batavia this boat authorized some sailors to land, and a small focus of cholera was established in the city. But contrary to what had happened in the past, the disease was stamped out after eight cases. Two hundred and fifty thousand persons—that is, five-sevenths of the population—had been vaccinated in the space of six weeks.

As to plague, account has been taken of the work of the Haffkine Institute at Bombay, notably on the standardization of antiplague vaccines. The number of vaccinations in India in 1927 (2,415,382) was about double that of former years. The history of a small epidemic of pneumonic plague in Mongolia in 1927 and that of plague in Transbaikalia in the course of recent years, with the plan of the antiplague organization, were reported. The principal object of the discussions involving the question of plague was the fumigation of ships, with a view to deratization. On the one hand, it is necessary to complete the documentation begun upon the conditions which may or may not render deratization necessary, such as the influence of age and of the details of construction of the ships, that of the nature of the cargo, of the route followed, and of the ports visited. On the other hand, the comparison of the results obtained

with sulphurous acid and with hydrocyanic acid seems to give to the latter an advantage from the point of view of efficacy, rapidity, and net cost; but the danger of serious accidents is not yet removed. Attention must be given to the processes of ventilation, with the aid of air-compressors, for example, to the perfecting and the strict surveillance of masks, and to the means of having toxic gas make its presence known.

Smallpox continues to be prevalent in England, with from 300 to 400 cases a week, with a little less violence than in the past year. It maintains its benign type; the few deaths reported in 1927 were due to associated diseases or to chronic pathological conditions. The large ports, except the region of New Castle, have been spared so far. As far as benignity is concerned, we must not lose sight of the fact that after a period of anodyne disease of alastrim type, case fatality may rise abruptly (10 per 100 in Jamaica). The relative frequency of post-vaccinal encephalitis in Holland (140 cases from 1924 to 1927, 2 cases in 60,000 vaccinations in 1928) has led the Netherlands Government to propose to remove the obligatory character from vaccination at the school age. The investigations of the Netherlands scientists, in conjunction, besides, with the English committee and with German experts, have brought about a definite differentiation of the anatomical lesions of post-vaccinal encephalitis from those of lethargic encephalitis. There is a tendency, on the contrary, to compare post-vaccinal encephalitis with that which is sometimes observed in measles, and smallpox, and also in the antirabic paralysis. Striking examples of the almost complete suppression of smallpox by mass vaccination of the population have been given by Egypt and Uruguay. The use of desiccated lymph for vaccination in the warm climates seems to have had satisfactory results in certain countries, mediocre results in others.

Vaccination against tuberculosis with B. C.-G. ("Bacillus Calmette-Guérin") having formed the subject of a communication in the preceding session, the permanent committee had invited Professor Calmette to come to explain the principles and the general results of it. It has been applied at the present time to about 150,000 children, 80,000 of them in France; at present the quantities of vaccine requested from the Pasteur Institute would make it possible to vaccinate 17 per cent of the children born in France; certain cities have planned the vaccination of all children at birth (La Rochelle, Beziers). Mortality from tuberculosis in the course of the first year among children born of tuberculous parents and brought up in contaminated environment, which in France averages 24 per 100, has fallen to 0.9 per 100 among the vaccinated. Among the objections which have been made to the method of vaccination recommended by Professor Calmette there are two, the refutation of which was

particularly interesting: First, is not B. C.-G. susceptible to the recovery of its virulence? It has never been possible for any experimentors to transform B. C.-G. into virulent stock. The local lesions observed at the point of inoculation and in the corresponding lymphatic territory are always cured spontaneously and do not contain bacilli reinoculable in series. Second, vaccination does not always produce the allergy which reveals the cutaneous reaction. Now, sensitiveness to tuberculin is a very long time in becoming established, following the absorption of bacilli by way of the intestines, and even after inoculation of a few bacilli under the skin. To the information given by Professor Calmette regarding experiments with vaccination in a great number of countries, there have been added communications concerning Sweden, Denmark, Greece, Brazil, and, in particular, Rumania, where vaccination with B. C.-G. was systematically practiced in 1927 in three districts of Bucharest and where it will be extended in 1928 to the whole capital and to 10 cities of the Province. A curious fact, mentioned also for France, has been very distinctly observed at Bucharest—the considerable diminution of the general mortality among vaccinated children, compared with those not vaccinated (4 per 100 instead of from 20.4 to 22.1 per 100).

The discussion brought to light the considerable differences which exist according to countries in the rate of mortality among children born of tuberculous parents and brought up in tuberculous environment—7 per 100 in Denmark and in the city of New York, 24 to 30 per 100 in other countries. The proposal has been made to follow up the wish expressed by Professor Calmette that the International Office of Public Hygiene attempt to collect statistics compiled for the different countries, under conditions as nearly identical as possible, on the rate of mortality of children living in tuberculous environment.

In the United States a systematic study of immunization against tuberculosis has been undertaken according to a new method; an attempt is being made to isolate the chemical substances to which must be ascribed the different characteristic properties of the tuberculosis bacillus—a phosphatide, which might be the decisive factor of the resistance of the organism allied with the formation of the epithelioid cell, and a polysaccharide, responsible for the toxic action of tuberculin in high dosage.

The rôle of *Brucella abortus* as the agent of undulant fever, demonstrated recently in the United States, has been confirmed this year by the researches undertaken in Sweden and in Denmark. Undulant fever, propagated by milk or by cattle, has, in this latter country, been shown to be more frequent than typhoid and paratyphoid fever.

The detailed study of the epidemiology of poliomyelitis in Rumania in 1927 has shown that the causal connection of the cases could nearly

always be found, and that, while giving their due to the healthy carriers, it was generally necessary to attribute the contagion to direct contact with the sick. Observations made in the United States, Sweden, and Denmark tend to show that milk should be enrolled in the list of possible sources of the virus, and that the digestive tract should be considered as the route very frequently followed by the infection.

General paralysis appears to have been slightly on the decrease in the United States since 1922; on the contrary, neurosyphilis has somewhat increased in Argentina in relation to the treatment by the arsenicals. Malaria therapy has given favorable results in the treatment of general paralysis at Moscow and in Greece. In Great Britain it has been the subject of a particularly instructive investigation; among the patients admitted to the asylums in 1923 and 1924, 56 per cent (among 438) of those who had been inoculated were alive in 1927, as compared with only 14 per cent of 1,173 who had not been treated by experimental malaria. The favorable impression given by these figures was, in great measure, confirmed by the direct examination of the subjects, who were all personally examined at the time of the investigation. In Rumania a difficulty is presented in the application of malaria therapy. In certain regions where malaria is very prevalent, individuals have been found who were impervious to inoculation; thus there came up the very interesting question of immunity against malaria.

In consequence of the proposal made during the course of the preceding session, information was presented regarding the strict regulation, in 18 countries, of antiseptics and coloring matters in foodstuffs. It has appeared that, except in particular cases, this regulation was quite uniform for the antiseptics, but that there were rather important differences for the coloring matters; and lists of those which are either excluded or authorized are consequently more or less comprehensive according to the countries.

As concerns the protection of maternity and infancy, the organization of the very well developed service of visiting nurses in Great Britain was explained, as also the results obtained in the United States, particularly from the point of view of infant mortality, by the education of mothers during pregnancy. The question of the furnishing of milk for infants was raised. The disadvantages of precocious marriage (girls under 15 years of age), which favors stillbirths, are interesting the sanitary authorities in the United States, in South America, in Egypt, and in British India.

A project for preliminary studies in the campaign against social diseases, considered from an international point of view, was submitted to the committee. It aims first at tuberculosis and syphilis, the control of which might admit of concerted action in certain directions.

In an array of related matters, social assistance to the merchant marine in Italy was the subject of a communication showing how, by a series of various regulations, that country has succeeded in ameliorating, in a remarkable fashion, the condition, and especially the hygiene, of the mariner.

Four entirely new questions were touched upon by the permanent committee of the International Office of Public Hygiene:

1. The measures to be taken against acute rheumatism, the origin of diseases of the heart which cause, according to findings made in Great Britain, 40 per cent of the deaths attributable to heart disease. Such serious consequences might be, in a certain measure, avoided, if children were made to undergo a suitable period of rest after illness and during critical periods from the point of view of relapses, and if they were effectively watched for a long time.

2. Intoxication by methyl alcohol, which produces intense disturbances and is a relatively frequent cause of blindness, might well form the subject of a study, in the first place, then, of preventive measures.

3. The construction and even the conception of hospitals are at the present time undergoing an evolution in the United States. It seems to be peculiar to that country in certain respects (establishments for the reception of well-to-do persons, not suffering with any serious disease); but in other respects it is more general, being observed especially in Czechoslovakia (diagnostic centers, equipped with all the modern means for investigation, for a determined radius, urban or rural).

4. Attention was drawn to the fact that mortality is diminishing more rapidly in the cities than in the countries (Prussia, Netherlands, Sweden, U. R. S. S., United States of America); even in Poland, where the mortality in the country is perceptibly lower than in the cities, the rate of decrease is slower in the country. It is expedient to combat this general phenomenon by the scientific sanitation of the country districts and by the development of institutions of social hygiene and of preventive medicine analogous to those of the cities.

Finally, interesting documents were produced on the campaign against diphtheria in the Belgian Luxemburg; on the recent epidemic of dengue in Athens; on amebic dysentery in Southern Serbia; on the conditions of the breeding of *Anopheles superpictus* in Southern Serbia; on the campaign against the venereal diseases in Uruguay; on the progress of researches concerning kala azar in British India; on the incidence of cancer in certain ethnical groups (mussulmans, Chinese); and on the anticancer organization in Uruguay.

COURT DECISIONS RELATING TO PUBLIC HEALTH

Ordinance regulating sale of uncooked or uncured meats held valid.—(California First District Court of Appeal, Division 1; Ex parte Lowenthal, 267 P. 886; decided May 25, 1928.) An ordinance of the city of Fresno made it unlawful for any person to sell or offer for sale any uncured or uncooked meats, or to remove the same from any established place of business in the city, or to keep open for business any place where such meats were sold or offered for sale between the hours of 7 o'clock p. m. and 7 o'clock a. m. of the following day or on any Sunday. In a habeas corpus proceeding by a person charged with the violation of the said ordinance, it was contended that the ordinance was invalid and void for the reason that it was in conflict with the State meat inspection law, and, therefore, contravened a provision of the State constitution. Regarding this contention the court of appeal said:

* * * The ordinance here attacked does not in any manner attempt to prohibit or restrict the sale of meat that has been inspected according to the provisions of the State law, nor does it impose any additional burdens or requirements concerning such meats. The portion of the ordinance objected to regulating the hours of sale of meats is in no manner contrary to or inconsistent with the provisions of the State law. The conduct of a meat market has always been the subject of regulation under the police power of the State or any municipality. * * * Any county or city may make and enforce within its limits all such local, police, sanitary, or other regulations as are not in conflict with general laws. * * * The ordinance under consideration is one designed to protect the public health, and the determination by the legislative body that the regulation is essential will not be disturbed by the courts. * * * Its manifest object is to prevent the sale of unfit or tainted meat at a time when those employed to safeguard the people are not on duty. The State law does not attempt to regulate the hours of sale of uncooked meats, but merely deals with the subject of the slaughtering of animals. The ordinance in question in no manner trespasses upon the provisions of the State law, nor is it inconsistent therewith. * * *

It was further contended that the ordinance was invalid and void for the reason that the regulation sought to be imposed was unreasonable and discriminatory in that it selected one kind of meat products to the exclusion of others. As to this the court stated as follows:

* * * There is a wide distinction between the sale of uncooked and other meat products. Fresh and uncooked meats are easily infected, and it requires constant supervision to insure their wholesomeness, or abuses will arise which may seriously impair the health of the public. The exclusion of other meats or foodstuffs from the operation of the ordinance therefore does not affect any right of petitioner under the organic law, for it is a proper exercise of the police power of the city.

Erection of slaughterhouse enjoined.—(Texas Court of Civil Appeals; Huff v. Letsinger et al., 7 S. W. (2d) 181; decided May 16, 1928.) A suit was brought by certain home owners to enjoin the erection of

a slaughterhouse on the ground that a nuisance would be created. The evidence on behalf of the plaintiffs was to the effect that the operation of the slaughterhouse in that neighborhood would not only jeopardize the health of the people there, but would render living there uncomfortable and unpleasant, making their homes less enjoyable. The trial court held that the slaughterhouse would constitute a nuisance which should be enjoined. The court of civil appeals affirmed the judgment of the court below, stating as follows:

We have concluded that while it is the general rule that the courts will not, in advance of operation, enter a decree perpetually enjoining them, when the business attacked is such as a gin, livery stable, garage, and the like, yet the fact that a slaughterhouse is prima facie a nuisance would authorize the court to enjoin its construction, if, after hearing all of the evidence, he is convinced that the defendant will not or can not conduct it so that it will prove not to be a nuisance.

The trial court having found, from all the evidence, against the defendant, we do not feel warranted in setting the judgment aside. * * *

PUBLIC HEALTH ENGINEERING ABSTRACTS

The Prevalence and Epidemiology of Hookworm and Other Helminthic Infections in India. Asa C. Chandler. *Indian Journal of Medical Research*, vol. 15, No. 3, January, 1928, pp. 695-743. (Abstract by N. R. Stoll.)

The preceding 11 parts of this series have already been separately abstracted. In this final, and valuable, synopsis, the author discusses the following topics: Methods of investigation; geographical considerations; climatic conditions in relation to hookworm infections; occupation in relation to defecation habits and hookworm infection; other epidemiological factors (footgear, domestic animals, insects, soil, irrigation, sex and age, species of hookworms); grades of infection and their significance; the index of infection; amount of hookworm infection in India and its significance (Burma, Assam, Bengal, Bihar and Orissa, United Provinces and Central India, Northwestern India, the Deccan and Western India, South India); bar diagrams; *ascaris* and *trichuris* infections; other nematode infections; flukes; suggestions for the further reduction of helminthic infections; prevention of promiscuous soil pollution; practicable latrines; selection and modification of defecation sites; and mass treatments.

Of the numerous items suitable for more extended review, two are perhaps worth special emphasis: namely, the actual significance of hookworm infection in India as judged by egg count, and the author's suggestions on the Indian sanitation problem.

"1. It is the general opinion that hookworm constitutes a very important problem in India. Incidence statistics, on which our knowledge of the disease in India has been based almost exclusively until recent years, indicated a very prevalent infection, and this has led to the assumption that it was also severe * * *. The outstanding result of investigations in southern India, and of our own in all parts of India, is the indisputable demonstration of the fact that, in spite of a very high incidence of infections in some parts of the country, hookworm disease is practically nonexistent in most places, and limited to a relatively small percentage of the population even in the most severely affected areas."

"2. The rural people of India do not like closed-in latrines, with sides and roof * * *. The two principal objections are the almost invariable fouling

of the standing places in the latrines and the disagreeableness of the odor. One can hardly blame an Indian for considering the use of a filthy and smelly latrine far less sanitary and desirable than the use of an apparently clean spot in a secluded place out in the open air. A very much more primitive and simplified type of latrine, consisting merely of an arrangement for keeping the feet from coming into contact with the polluted ground, is, it seems to me, a much more hopeful goal for the present." The use of old thatch, particularly when placed over clay soil, and the construction, in existing defecation areas, of ditches or trenches which can be straddled, are recommended.

Factors Considered in the Design of the Abilene, Tex., Water Purification Plant. O. K. Hobbs. Tenth Texas Water Works Short School Proceedings, January 23-27, 1928, pp. 57-61. (Abstract by Chester Cohen.)

Lake Abilene, located 19 miles southwest of the city of Abilene, furnished that town with a water supply delivered by gravity through 18-inch cast-iron mains to two 20,000,000-gallon storage basins. A 4 m. g. d. treatment plant has been designed to include special methods of proportioning the chemical dosage. Specially designed chemical control machines have been installed, operating under principal of the undershot water wheel placed in a channel carrying water to the treatment plant, this wheel acting as a positive displacement meter and furnishing power to drive the machines which mechanically measure out the lime slurry and the iron solution used in the softening and coagulation of the raw water. Special types of mixers and weirs have been included in the design and are very creditably discussed in this paper.

The sedimentation basins are separated into two compartments. The first compartment provides for a detention period of 45 minutes, and in this compartment over 95 per cent of the deposit occurs. The settled coagulant can be withdrawn from the basin daily by the hopper bottom flushing arrangement. The basin is baffled on the over-and-under system, and all the units are arranged so that the plant can be operated by one attendant.

The cost of treating this water, including labor, power, chemicals, and interest and depreciation on the plant, amounts to \$26 at a 2 m. g. d. rate. It is expected that the cost of this treatment and softening process will be reduced to \$5.94 when the designed capacity of the plant is reached.

Filter Plant Troubles. C. Arthur Brown. Tenth Texas Water Works Short School Proceedings, January 23-27, 1928, pp. 77-85. (Abstract by Chester Cohen.)

"Broadly speaking, it is our belief that the major portion of filter troubles may be traced to faulty design rather than to faulty operation." The author lists a number of major difficulties due to design, among which he includes failure to provide a measurement of flow into the plant, lack of grit chambers, inefficient mixing chambers, inadequate size of tortuous passageways between mixing chamber and settling basin, split flows, and improper introduction of treated water in the settling basins. In a very complete manner the author takes up the various steps of water purification as the supply passes through the settling basins and filters and explains, point by point, the inherent difficulties and the principles of operation and design which are effective in securing a most economical and satisfactory result.

"The filters themselves, for present day practice, are far from perfect. Most of the difficulties of the filters, *per se*, are either directly or indirectly attributable to faulty washing." The author believes that the theoretical uniform rate of rise through the entire area of the sand bed to be wrong in principle and suggests a possible elimination of the gravel layer. This would result (1) in cutting out the cost of the gravel, and (2) reducing the size of the filter box required to hold the gravel layer; and the saving thus effected would go a long way toward

providing a jet type of bottom with a homogeneous sand bed. The author completes his article with a discussion of filter controllers, loss of head gauges, and plant operation. In discussing the laboratory control of the plant the writer states: "Too few operators make this a consistent practice. If the output of every filter is subjected to bacterial analysis every day, many difficulties will be discovered before they assume large proportions."

Public Water Supplies in Illinois. Anon. *Engineering News-Record*, vol. 100, No. 20, May 17, 1928, p. 775.

The following tabulation of conditions as of 1921 and 1928 are given by Mr. H. F. Ferguson, of the State Department of Health:

	1921	1928
Total population of municipalities (population as of 1920).....	5, 083, 990	5, 083, 990
Population served by public water supplies.....	4, 696, 381	4, 956, 698
Percentage of total population served.....	92. 5	97. 8
Total municipalities having public water supplies.....	459	505
Quality of supplies:		
Good.....	356 (77%)	389 (79%)
Doubtful.....	67 (15%)	93 (18%)
Bad.....	36 (8%)	13 (3%)
Persons supplied with "good" water.....	3, 604, 122	3, 758, 671

In the following comparison of 1921 and 1928 the increase in number of supplies classified as "doubtful" is caused by several supplies changing from "bad" to "doubtful" and not entirely carrying out the department's recommendations so as to be classed as "good":

Increase in population served by public water supplies.....	260, 317
Increase in number of municipalities served.....	46
Increase in number of "good" supplies.....	42
Increase in number of "doubtful" supplies.....	26
Decrease in number of "bad" supplies.....	23
Increase in population served by "good" water.....	154, 549

Proposed State Aid for Sewage Disposal Problems. Anon. *Pacific Municipalities*, vol. 42, No. 4, April, 1928, pp. 111-113. (Abstract by D. S. Abell.)

This article, written by the Education Committee of the League of California Municipalities, points out clearly the situation in California with reference to sewage disposal and stream pollution. The following headings indicate the scope: (1) Origin of movements and supporting organizations; (2) present and prospective pollution of California streams, bays, irrigation channels, and beaches; (3) sewage and industrial wastes disposal problems; (4) problems peculiar to California; (5) the need for practical study of these problems; (6) the state-wide nature of the problem—the solution of the problem is a State function; (7) proposed method of study—publication of results; (8) proposed legislative assistance. Many States, no doubt, are in sore need of such a movement as this and they will be much assisted by watching California.

River Pollution. F. H. Heald. *The Surveyor*, vol. 72, No. 1869, November 18, 1927, pp. 495-496. (Abstract by C. K. Calvert.)

The author believes that much of the pollution of streams is due to psychological rather than financial reasons. While some municipalities are unable to finance sewage works, many now are delivering unsatisfactory effluents on account of improper operation by men inexperienced in the processes involved. Some industrial plants have disposal works delivering excellent effluents, but also have an "unofficial" overflow into the stream through a storm water sewer or the like. Storm water outfalls are criticized in that they function during dry weather and low stream flows, when a local storm floods the sewers. In many cases proper supervision and operation of existing works would relieve the streams for some years to come.

Typhoid Fever Epidemic, Santa Ana, California. Charles H. Halliday and M. Dorothy Beck. *Journal of Preventive Medicine*, vol. 2, No. 1, January, 1928, pp. 49-67. (Abstract by W. M. Olson.)

The Santa Ana water supply was polluted through an old and forgotten sewer connection to the pump pit. The milk supply was contaminated also, probably by a person infected from the water supply. In a population of 27,000 there were 10,000 cases of gastroenteritis and 620 cases of typhoid fever, of which 369 were water-borne, 200 from milk, and 51 contacts.

Early in January, 1924, the board of health recommended chlorination of water and pasteurization of milk. The water was not treated until February 7, and the milk, not until March 19.

Detailed data are presented on laboratory diagnosis. Two per cent of the 548 cases examined by the laboratory for release remained carriers after six months. Of 916 food handlers, 1.85 per cent were found to be carriers.

Twelve tables list chronological occurrence of typhoid fever, sex, and age distribution of water-borne typhoid, milk distribution by two dairies, bacterial counts of raw milk, milk-borne typhoid by sex and age, contact cases by sex and age, incidence by age and source of infection, deaths by sex and age and source of infection, previous typhoid fever or vaccination, release from quarantine according to stool findings, interval between clinical recovery and release by laboratory, and duration of carrier state by age groups. The number of cases by source and date of onset is shown graphically.

Some Municipal Works at Totnes (England). J. L. Davies. *The Surveyor*, vol. 73, No. 1895, May 18, 1928, pp. 529-533. (Abstract by H. W. Streeter.)

This article gives a detailed description of municipal works at Totnes, a small borough located on the river Dart, 10 miles upstream from Dartmouth. The features described include highways, parks, town planning, housing, water supply, sewerage, scavenging, markets, and public lighting. Interesting data, with illustrations, are given on the borough's housing development, which thus far has comprised 58 houses. Under the first scheme, 22 houses, in units of four and two under common roofs, were constructed at a total cost of about \$52,000, or \$2,300 per house. The rental is fixed at 9 shillings (\$2.20) per week. The cost of the land and fencing was \$110 per house. The water supply is taken from deep wells, no purification being required. The town sewage is screened before being discharged into the river. Water consumption is 25 gallons per capita daily, including 3 gallons for trade purposes.

Town Planning in Sweden. A. Lilienberg. *The Surveyor*, vol. 73, No. 1892, April 27, 1928, pp. 465-466. (Abstract by F. J. Laverty.)

Although there are only some 120 towns in Sweden, fixed plans have been in use since the beginning of the sixteenth century. Perhaps the first building and town planning law applicable to an entire country was the law passed in Sweden in 1874 which "embraced only the technical regulation for the planning and building of towns in conformity with the requirements of hygiene, comfort, communication, and protection from fire." Some 4,000 plans have been made since the passage of this law.

The town plan was adopted by town authority, with final approval, except in minor cases, resting with the King. The plan was usually drawn on a scale of one two-thousandth part of the actual dimension and included a topographical map. General building regulations, such as building height, zoning, financing, and law enforcement, were definitely provided in the law of 1907, which influenced to some extent the English town planning act of 1909.

The Development of Housing Areas in Dublin. P. E. Mathews. *The Surveyor*, vol. 73, No. 1895, May 18, 1928, pp. 533-534. (Abstract by H. W. Streeter.)

This article contains a description of the methods followed in developing housing schemes in Dublin, with details as to the layout for the Marino area, now comprising 1,300 houses. Undeveloped land is acquired at costs varying from \$1,000 to \$1,300 per acre, the city paying the owner 5 per cent interest during the period of payment. Development work, consisting of the construction of roads, sewers, water mains, and electric cable conduits, is proceeded with as soon as the land is acquired. For water supply, 4-inch service pipes are used, and for sewers, sufficient capacity to provide for a flow of 40 gallons per capita over a 12-hour period daily. The maximum rainfall allowed for is 1 inch per hour, taken over combined roofs, paved yards, pathways, carriage-ways, and other surfaces which may be drained into sewers. From a section containing 200 houses, occupied by 1,000 persons, the dry weather flow of sewage would be 8.8 cubic feet per minute, with a maximum rainfall discharge for three hours equal to 97.7 cubic feet per minute. The smallest sewers laid are 9 inches in diameter. Carriage-ways are 34 to 40 feet wide, with two coats of concrete 7 inches in total thickness.

Sanitation in Rural Areas. G. B. Chilvers. *The Surveyor*, vol. 73, No. 1880, February 3, 1928, pp. 185-186. (Abstract by H. W. Streeter.)

The problem of sanitation in rural areas is discussed from the standpoints of housing, water supply, drainage and sewerage, sewage disposal, refuse removal and disposal, and rural taxing. The rural housing problem is stated as being serious in Great Britain, owing to the insanitary condition of the older houses and the slowness of new construction, due to the high cost of building. The water-supply problem also is difficult, few villages being able to have a pure and efficient supply. Dependence is placed mainly on scattered wells. An efficient drainage system depends on an efficient water supply. Few villages are provided with proper means of sewage disposal. As regards refuse disposal, it probably is more efficient in the rural districts than in the cities, though it is handled largely by individual residents.

The existing system of meeting the cost of sanitary improvements in rural areas by a special tax on the parish installing them is condemned by the author, who suggests that grants be made from national funds toward the cost of such works.

DEATHS DURING WEEK ENDED AUGUST 4, 1928

Summary of information received by telegraph from industrial insurance companies for the week ended August 4, 1928, and corresponding week of 1927. (From the Weekly Health Index, August 8, 1928, issued by the Bureau of the Census, Department of Commerce)

	Week ended Aug. 4, 1928	Corresponding week, 1927
Policies in force.....	71, 583, 582	68, 155, 875
Number of death claims.....	12, 601	11, 530
Death claims per 1,000 policies in force, annual rate.....	9. 2	8. 8

Deaths from all causes in certain large cities of the United States during the week ended August 4, 1928, infant mortality, annual death rate, and comparison with corresponding week of 1927. (From the Weekly Health Index, August 8, 1928, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Aug. 4, 1928		Annual death rate per 1,000, corresponding week, 1927	Deaths under 1 year		Infant mortality rate, week ended Aug. 4, 1928 ²
	Total deaths	Death rate ¹		Week ended Aug. 4, 1928	Corresponding week, 1927	
Total (68 cities).....	6,274	10.8	10.4	641	677	51
Akron.....	32			2	4	22
Albany ¹	42	18.2	14.0	3	3	61
Atlanta.....	82	16.8	16.2	16	17	
White.....	32		14.3	5	8	
Colored.....	50	(⁹)	24.0	11	9	
Baltimore ¹	182	11.5	12.4	17	25	54
White.....	131		10.5	10	16	40
Colored.....	51	(⁹)	22.9	7	9	110
Birmingham.....	64	13.0	13.7	11	8	94
White.....	20		10.2	4	2	55
Colored.....	44	(⁹)	19.1	7	6	138
Boston.....	167	10.9	11.1	22	31	61
Bridgeport.....	25			0	3	0
Buffalo.....	125	11.8	11.8	14	17	60
Cambridge.....	19	7.9	8.0	0	1	0
Camden.....	21	8.1	8.3	1	3	16
Canton.....	20	9.0	6.0	3	2	71
Chicago ¹	554	9.2	9.7	56	74	48
Cincinnati.....	133	16.8	14.0	12	15	73
Cleveland.....	172	8.9	7.7	13	18	35
Columbus.....	79	13.9	11.1	6	7	56
Dallas.....	45	10.8	11.8	4	5	
White.....	38		9.9	3	3	
Colored.....	7	(⁹)	24.7	1	2	
Denver.....	73	13.0	10.8	7	5	
Des Moines.....	31	10.7	10.9	4	5	66
Detroit.....	244	9.3	8.7	38	36	50
Duluth.....	18	8.1	11.4	4	1	93
El Paso.....	21	9.3	12.4	4	6	
Erie.....	17			1	2	21
Fall River ¹	16	6.2	9.4	1	3	17
Flint.....	25	8.8	6.9	3	7	38
Fort Worth.....	36	11.2	12.4	1	2	
White.....	27		11.9	0	2	
Colored.....	9	(⁹)	16.0	1	0	
Grand Rapids.....	30	9.6	7.4	4	3	60
Houston.....	54			9	9	
Indianapolis.....	70	9.0	9.6	8	6	61
White.....	58		9.0	8	5	70
Colored.....	12	(⁹)	14.0	0	1	0
Jersey City.....	60	9.7	8.6	11	3	82
Kansas City, Kans.....	29	12.8	14.6	4	3	84
White.....	21		13.0	2	3	49
Colored.....	8	(⁹)	22.1	2	0	290
Kansas City, Mo.....	86	11.5	12.7	5	14	35
Knoxville.....	28	13.9	15.8	3	2	65
White.....	22		16.8	3	2	73
Colored.....	6	(⁹)	8.5	0	0	0
Los Angeles.....	181			10	23	29
Louisville.....	90	14.3	11.6	11	10	92
White.....	73		9.8	9	8	86
Colored.....	17	(⁹)	21.3	2	2	138
Lowell.....	27	12.8	12.8	3	9	63
Lynn.....	15	7.4	10.9	0	1	0
Memphis.....	62	17.0	23.0	10	10	117
White.....	38		16.3	6	2	112
Colored.....	24	(⁹)	35.4	4	8	125
Milwaukee.....	111	10.7	9.9	9	7	40
Minneapolis.....	81	9.3	7.5	4	6	24
Nashville.....	59	22.3	17.4	12	6	189
White.....	41		15.8	10	4	213
Colored.....	18	(⁹)	21.4	2	2	120
New Bedford.....	17	7.4	9.2	2	3	43
New Haven.....	33	9.2	6.8	3	0	42

See footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended August 4, 1928, infant mortality, annual death rate, and comparison with corresponding week of 1927—Continued

City	Week ended Aug. 4, 1928		Annual death rate per 1,000, corresponding week, 1927	Deaths under 1 year		Infant mortality rate, week ended Aug. 4, 1928 ¹
	Total deaths	Death rate ¹		Week ended Aug. 4, 1928	Corresponding week, 1927	
New Orleans.....	135	16.4	19.7	15	20	73
White.....	75		14.6	9	9	65
Colored.....	60	(²)	34.0	6	11	87
New York.....	1,145	9.9	9.7	106	117	43
Bronx Borough.....	151	8.3	8.6	10	12	30
Brooklyn Borough.....	371	8.4	8.4	41	52	41
Manhattan Borough.....	485	14.5	12.7	45	40	53
Queens Borough.....	106	6.5	7.0	8	10	32
Richmond Borough.....	32	11.1	15.6	2	3	36
Newark, N. J.....	84	9.3	8.8	11	9	57
Oakland.....	52	9.9	10.3	3	3	33
Oklahoma City.....	36			8	4	
Omaha.....	55	12.9	11.2	2	5	23
Paterson.....	28	10.1	9.4	4	0	69
Philadelphia.....	413	10.5	11.6	33	37	47
Pittsburgh.....	139	10.8	10.4	15	17	49
Portland, Oreg.....	49			4	1	43
Providence.....	62	11.3	8.7	7	5	61
Richmond.....	46	12.4	11.4	11	4	144
White.....	17		8.4	2	2	41
Colored.....	29	(²)	18.8	9	2	331
Rochester.....	65	10.0	9.2	3	5	24
St. Louis.....	163	10.0	9.9	14	17	47
St. Paul.....	53	11.0	9.2	2	3	19
Salt Lake City ³	34	12.9	14.2	4	3	66
San Antonio.....	62	14.9	10.1	8	5	
San Diego.....	43	18.8	13.6	1	6	19
San Francisco.....	140	12.5	14.8	7	9	44
Schenectady.....	12	6.7	5.6	1	0	31
Seattle.....	78	10.6	10.1	6	4	62
Somerville.....	20	10.2	7.2	3	0	104
Spokane.....	28	13.4	10.5	3	3	77
Springfield, Mass.....	20	7.0	8.1	3	1	48
Syracuse.....	41	10.8	11.4	6	4	73
Tacoma.....	20	9.5	8.3	2	1	51
Toledo.....	73	12.2	8.4	10	3	96
Trenton.....	39	14.7	11.8	1	4	17
Washington, D. C.....	137	13.0	9.6	16	12	91
White.....	76		7.9	8	6	66
Colored.....	61	(²)	14.5	8	6	148
Waterbury.....	15			3	3	87
Wilmington, Del.....	29	11.8	7.0	4	1	105
Worcester.....	51	13.5	8.8	5	2	61
Yonkers.....	14	6.0	4.8	1	1	23
Youngstown.....	28	8.4	5.5	3	2	40

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

³ Deaths for week ended Friday, Aug. 3, 1928.

⁴ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended August 11, 1928, and August 13, 1927

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended August 11, 1928, and August 13, 1927

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Aug. 11, 1928	Week ended Aug. 13, 1927	Week ended Aug. 11, 1928	Week ended Aug. 13, 1927	Week ended Aug. 11, 1928	Week ended Aug. 13, 1927	Week ended Aug. 11, 1928	Week ended Aug. 13, 1927
New England States:								
Maine.....	3	17	1	0	40	1	0	-----
New Hampshire.....	2	-----	-----	-----	6	-----	0	-----
Vermont.....	1	1	-----	0	4	6	0	-----
Massachusetts.....	46	38	2	2	90	62	1	-----
Rhode Island.....	2	4	-----	0	57	1	0	-----
Connecticut.....	11	33	2	0	39	6	0	1
Middle Atlantic States:								
New York.....	113	164	11	17	239	167	44	-----
New Jersey.....	58	66	-----	0	66	18	2	-----
Pennsylvania.....	71	76	-----	(?)	253	47	1	1
East North Central States:								
Ohio.....	17	-----	10	-----	66	-----	3	-----
Indiana.....	11	18	10	12	18	1	0	-----
Illinois.....	72	90	2	23	29	29	7	3
Michigan.....	52	34	3	-----	61	23	5	1
Wisconsin.....	14	26	8	6	19	78	1	5
West North Central States:								
Minnesota.....	14	25	1	0	5	13	1	1
Iowa.....	5	5	-----	-----	-----	4	0	-----
Missouri.....	23	18	-----	0	16	7	2	2
North Dakota.....	1	0	1	0	3	2	2	-----
South Dakota.....	-----	2	9	0	13	4	2	-----
Nebraska.....	2	2	5	0	-----	8	-----	1
Kansas.....	8	9	2	8	5	23	1	5
South Atlantic States:								
Delaware.....	1	0	-----	0	-----	2	0	-----
Maryland.....	10	22	2	5	6	12	1	-----
District of Columbia.....	12	13	-----	0	4	0	0	-----
Virginia.....	-----	-----	-----	-----	-----	-----	0	-----
West Virginia.....	8	12	13	0	2	6	1	1
North Carolina.....	17	37	-----	-----	24	164	0	-----
South Carolina.....	15	19	233	106	5	52	0	-----
Georgia.....	9	18	46	24	3	5	0	-----
Florida.....	5	10	38	4	-----	10	1	2
East South Central States:								
Kentucky.....	-----	-----	-----	-----	-----	-----	0	-----
Tennessee.....	6	21	5	5	8	6	0	1
Alabama.....	23	17	44	12	14	30	3	2
Mississippi.....	8	17	-----	-----	-----	-----	-----	-----
West South Central States:								
Arkansas.....	4	1	4	14	4	14	0	-----
Louisiana.....	9	19	8	10	1	1	0	-----
Oklahoma.....	16	18	20	18	-----	21	1	-----
Texas.....	9	22	24	24	6	8	0	-----

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended August 11, 1928, and August 13, 1927—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Aug. 11, 1928	Week ended Aug. 13, 1927	Week ended Aug. 11, 1928	Week ended Aug. 13, 1927	Week ended Aug. 11, 1928	Week ended Aug. 13, 1927	Week ended Aug. 11, 1928	Week ended Aug. 13, 1927
Mountain States:								
Montana.....	3	2	0	0	1	2	2	1
Idaho.....	0	2	0	0	0	0	0	1
Wyoming.....	8	0	0	0	1	4	0	0
Colorado.....	2	21	1	0	11	2	1	0
New Mexico.....	6	6	0	0	4	7	0	0
Arizona.....	1	2	1	0	0	3	0	0
Utah.....	1	4	0	0	2	2	2	0
Nevada.....								
Pacific States:								
Washington.....	11	16	0	0	9	30	1	1
Oregon.....	3	7	2	9	6	17	0	8
California.....	56	65	4	4	11	50	2	2
Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Aug. 11, 1928	Week ended Aug. 13, 1927	Week ended Aug. 11, 1928	Week ended Aug. 13, 1927	Week ended Aug. 11, 1928	Week ended Aug. 13, 1927	Week ended Aug. 11, 1928	Week ended Aug. 13, 1927
New England States:								
Maine.....	0		7	23	0	0	5	8
New Hampshire.....	3		4		0	0	0	0
Vermont.....	1		3	1	0	0	0	0
Massachusetts.....	43	28	47	81	0	0	14	16
Rhode Island.....	0		1	4	0	0	1	1
Connecticut.....	3	8	7	8	0	0	2	3
Middle Atlantic States:								
New York.....	56	13	54	83	0	0	40	41
New Jersey.....	3	13	25	29	0	0	8	15
Pennsylvania.....	10	4	72	44	1	1	62	29
East North Central States:								
Ohio.....	5		40		2		36	
Indiana.....	1	3	35	30	14	30	31	20
Illinois.....	1	7	49	78	9	4	34	59
Michigan.....	0	2	63	52	18	11	12	15
Wisconsin.....	1	2	41	68	22	6	3	12
West North Central States:								
Minnesota.....	6	1	32	55	0	0	5	10
Iowa.....	2	1	8	7	3	9	3	8
Missouri.....	0	8	13	22	10	3	20	31
North Dakota.....	13	0	16	20	0	3	0	1
South Dakota.....	0		9	3	1	3	1	0
Nebraska.....	1	1	7	28	8	6	1	10
Kansas.....	3	4	37	28	22	2	15	22
South Atlantic States:								
Delaware.....	1		1	0	0	0	0	3
Maryland.....	26		3	4	0	0	26	51
District of Columbia.....	1	2	4	3	0	1	3	2
Virginia.....	1		0		0		0	
West Virginia.....	1		12	15	5	20	27	24
North Carolina.....	0	1	29	20	13	4	95	103
South Carolina.....	1	2	0	13	1	3	70	142
Georgia.....	0		4	8	0	0	55	83
Florida.....	0	2	2	5	0	7	7	18
East South Central States:								
Kentucky.....	7		21		0		3	
Tennessee.....	3	5	12	35	1	2	99	148
Alabama.....	2	1	4	19	1	3	91	70
Mississippi.....	1	1	4	8	1	2	61	29
West South Central States:								
Arkansas.....	0		2	2	0	2	30	0
Louisiana.....	0	1	1	8	1	1	41	43
Oklahoma.....	1	11	2	11	9	41	62	99
Texas.....	0	19	15	14	11	16	18	18

See footnotes at end of table.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended August 11, 1928, and August 13, 1927—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Aug. 11, 1928	Week ended Aug. 13, 1927	Week ended Aug. 11, 1928	Week ended Aug. 13, 1927	Week ended Aug. 11, 1928	Week ended Aug. 13, 1927	Week ended Aug. 11, 1928	Week ended Aug. 13, 1927
Mountain States:								
Montana.....	3	-----	1	29	10	0	3	3
Idaho.....	4	-----	1	3	6	2	-----	4
Wyoming.....	0	-----	4	2	1	0	1	1
Colorado.....	1	1	10	19	0	0	2	10
New Mexico.....	0	9	4	6	0	0	3	3
Arizona.....	0	1	0	1	0	0	2	5
Utah ¹	1	-----	3	8	0	1	0	2
Nevada.....	-----	-----	-----	-----	-----	-----	-----	-----
Pacific States:								
Washington.....	12	-----	5	6	10	8	4	3
Oregon.....	5	1	13	4	18	13	4	3
California.....	4	63	37	38	13	7	22	20

¹ New York City only.

² The report of 134 cases of influenza for week ended July 30, 1927, Public Health Reports for August 3, 1928, p. 2059, was an error. This figure was for measles.

³ Week ended Friday.

⁴ Exclusive of Tulsa.

Report for Week Ended June 30, 1928

	GEORGIA	Cases
Diphtheria.....	-----	2
Influenza.....	-----	19
Malaria.....	-----	63
Measles.....	-----	24
Scarlet fever.....	-----	5
Typhoid fever.....	-----	33

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 97 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 30,520,000. The estimated population of the 93 cities reporting deaths is more than 30,320,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended July 28, 1928, and July 30, 1927

	1928	1927	Estimated expectancy
Cases reported			
Diphtheria:			
42 States.....	729	993	-----
97 cities.....	396	444	186
Measles:			
41 States.....	2,272	1,889	-----
97 cities.....	757	330	-----
Poliomyelitis:			
42 States.....	81	143	-----
Scarlet fever:			
42 States.....	688	1,038	-----
97 cities.....	244	359	285
Smallpox:			
42 States.....	305	227	-----
97 cities.....	12	30	25
Typhoid fever:			
42 States.....	826	1,005	-----
97 cities.....	133	125	112
Deaths reported			
Influenza and pneumonia:			
93 cities.....	282	295	-----
Smallpox:			
93 cities.....	0	0	-----

City reports for week ended July 28, 1928

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible but no year earlier than 1919 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population, July 1, 1926, estimated	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
			Cases, esti- mated expec- tancy	Cases re- ported	Cases re- ported	Deaths re- ported			
NEW ENGLAND									
Maine:									
Portland.....	76,400	0	1	0	0	0	2	4	0
New Hampshire:									
Concord.....	¹ 22,546	0	0	0	0	0	1	0	0
Vermont:									
Barre.....	¹ 10,008	0	0	0	0	0	0	0	0
Burlington.....	¹ 24,089	0	1	0	0	0	1	0	0
Massachusetts:									
Boston.....	787,000	22	30	9	2	1	16	1	9
Fall River.....	131,000	0	2	0	0	0	14	0	0
Springfield.....	145,000	1	1	3	0	0	13	1	0
Worcester.....	193,000	0	2	0	0	0	17	0	0
Rhode Island:									
Pawtucket.....	71,000	0	0	0	0	0	0	0	0
Providence.....	275,000	0	3	5	0	0	195	1	0
Connecticut:									
Bridgeport.....	(²)	0	4	1	1	0	9	0	0
Hartford.....	164,000	0	2	1	0	0	16	0	1
New Haven.....	182,000	0	1	1	0	1	0	0	5
MIDDLE ATLANTIC									
New York:									
Buffalo.....	544,000		7						
New York.....	5,924,000	36	126	115	4	2	130	9	67
Rochester.....	321,000	1	4	2		0	22	6	1
Syracuse.....	185,000	4	2	0		0	8	2	2
New Jersey:									
Camden.....	131,000	0	3	1	0	0	4	1	3
Newark.....	459,000	5	7	14	0	0	13	2	6
Trenton.....	134,000	0	1	0	0	0	5	0	0
Pennsylvania:									
Philadelphia.....	2,008,000	8	38	19	0	2	58	7	18
Pittsburgh.....	637,000	8	30	10	0	0	9	7	7
Reading.....	114,000	0	2	1	0	0	2	0	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati.....	411,000	3	4	5	0	0	3	0	0
Cleveland.....	960,000	2	19	17	0	1	58	8	5
Columbus.....	285,000	1	2	0	1	1	6	1	0
Toledo.....	295,000	1	3	1	0	0	9	0	1
Indiana:									
Fort Wayne.....	99,900	0	1	0	0	0	0	0	0
Indianapolis.....	367,000	0	3	2	0	0	5	3	4
South Bend.....	81,700	0	0	1	0	0	0	0	0
Terre Haute.....	71,900	0	0	0	0	0	2	0	0
Illinois:									
Chicago.....	3,048,000	18	48	38	4	2	17	7	24
Springfield.....	64,700	1	0	0	2	2	0	0	0
Michigan:									
Detroit.....	¹ 1,242,044	9	28	26	0	2	20	1	3
Flint.....	136,000	0	4	0	0	0	5	0	0
Grand Rapids.....	156,000	0	1	0	0	0	4	4	0

¹ Estimated, July 1, 1925.² No estimate made.³ Special census.

City reports for week ended July 28, 1923—Continued

Division, State, and city	Population, July 1, 1926, estimated	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
			Cases, esti- mated expect- ancy	Cases re- ported	Cases re- ported	Deaths re- ported			
EAST NORTH CENTRAL— continued									
Wisconsin:									
Kenosha.....	52,700	0	0	0	0	0	0	0	0
Milwaukee.....	517,000	7	9	4	1	1	5	4	6
Racine.....	69,400	0	1	0	0	0	0	0	1
Superior.....	¹ 39,671	0	0	5	0	0	2	10	1
WEST NORTH CENTRAL									
Minnesota:									
Duluth.....	113,000	0	1	0	0	0	0	0	0
Minneapolis.....	434,000	7	10	13	0	0	3	2	3
St. Paul.....	248,000	1	8	1	0	0	0	0	3
Iowa:									
Davenport.....	¹ 52,469	0	1	0	0	0	0	0	0
Des Moines.....	146,000	0	1	1	0	0	0	0	0
Sioux City.....	78,000	1	1	0	0	0	0	1	0
Waterloo.....	36,900	0	0	0	0	0	0	1	0
Missouri:									
Kansas City.....	375,000	2	2	0	0	1	4	0	0
St. Joseph.....	78,400	0	1	2	0	0	0	0	1
St. Louis.....	830,000	2	19	13	0	0	7	5	0
North Dakota:									
Fargo.....	¹ 26,403	0	0	0	0	0	0	0	0
Grand Forks.....	¹ 14,811	1	0	0	0	0	0	0	0
South Dakota:									
Aberdeen.....	¹ 15,036	3	0	0	0	0	0	0	0
Sioux Falls.....	¹ 30,127	0	0	0	0	0	0	0	0
Nebraska:									
Lincoln.....	62,000	1	0	0	0	0	0	1	0
Omaha.....	216,000	1	2	0	0	0	0	2	3
Kansas:									
Topeka.....	56,500	1	0	0	0	0	1	0	0
Wichita.....	92,500	1	1	1	0	0	0	25	0
SOUTH ATLANTIC									
Delaware:									
Wilmington.....	124,000	0	1	1	0	0	0	0	1
Maryland:									
Baltimore.....	508,000	11	11	8	0	0	5	9	14
Cumberland.....	¹ 33,741	0	0	0	0	0	0	0	0
Frederick.....	¹ 12,035	0	0	0	0	0	0	0	0
District of Columbia:									
Washington.....	528,000	2	4	19	0	0	17	0	5
Virginia:									
Lynchburg.....	¹ 38,493	1	0	1	0	0	0	1	1
Norfolk.....	174,000	1	0	0	0	0	1	0	1
Richmond.....	189,000	0	2	2	0	0	2	1	0
Roanoke.....	61,900	0	0	0	0	0	0	0	0
West Virginia:									
Charleston.....	50,700	0	1	0	0	0	2	0	1
Wheeling.....	¹ 56,208	0	0	0	0	0	1	0	0
North Carolina:									
Raleigh.....	¹ 30,371	0	0	0	0	0	3	0	0
Wilmington.....	37,700	0	0	0	0	0	0	0	0
Winston-Salem.....	71,900	0	0	0	0	0	0	0	0
South Carolina:									
Charleston.....	74,100	0	0	0	24	0	0	0	0
Columbia.....	41,800	0	0	0	0	0	0	1	1
Greenville.....	¹ 27,311	0	0	0	0	0	0	0	1
Georgia:									
Atlanta.....	(7)	0	1	0	6	1	0	0	8
Brunswick.....	¹ 16,899	0	0	0	0	0	0	0	0
Savannah.....	94,000	2	1	1	4	0	0	0	1
Florida:									
Miami.....	¹ 131,286	0	3	0	3	0	0	0	2
St. Petersburg.....	¹ 47,629	0	0	0	0	0	0	0	0
Tampa.....	102,000	0	0	3	15	2	0	0	3

¹ Estimated, July 1, 1925.² No estimate made.³ Special census.

City reports for week ended July 28, 1928—Continued

Division, State, and city	Population, July 1, 1926, estimated	Chick- en pox, cases re- ported	Diphtheria		Influenza		Meas- les, cases re- ported	Mumps, cases re- ported	Pneu- monia, deaths re- ported
			Cases, esti- mated expect- ancy	Cases re- ported	Cases re- ported	Deaths re- ported			
EAST SOUTH CENTRAL									
Kentucky:									
Covington.....	58,500	0	1	1	0	0	0	0	2
Louisville.....	311,000	0	2	3	0	0	2	0	9
Tennessee:									
Memphis.....	177,000	1	1	1	0	0	3	1	3
Nashville.....	137,000	0	1	3	0	0	8	0	1
Alabama:									
Birmingham.....	211,000	0	1	2	0	2	2	1	5
Mobile.....	66,800	0	0	0	0	1	0	0	0
Montgomery.....	47,000	0	0	0	0		1	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith.....	¹ 31,643	0	0	0	0		0	0	
Little Rock.....	75,900	0	0	0	0	0	0	0	0
Louisiana:									
New Orleans.....	419,000	0	4	6	2	1	0	0	4
Shreveport.....	59,500	0	1	0	0	0	0	0	1
Oklahoma:									
Oklahoma City.....	(²)	1	1	1	0	0	0	0	2
Texas:									
Dallas.....	203,000	0	2	7	0	0	0	0	6
Fort Worth.....	159,000	0	2	0	0	0	0	0	1
Galveston.....	49,100	0	0	1	3	0	0	0	0
Houston.....	¹ 164,964	0	2	1	0	0	0	0	5
San Antonio.....	205,000	0	1	2	0	2	0	0	4
MOUNTAIN									
Montana:									
Billings.....	¹ 17,971	0	0	0	0	0	0	0	1
Great Falls.....	¹ 29,883	0	1	0	0	0	0	0	1
Helena.....	¹ 12,087	0	0	0	0	0	0	0	1
Missoula.....	¹ 12,668	0	0	0	0	0	0	0	0
Idaho:									
Boise.....	¹ 23,042	0	0	0	0	0	0	0	0
Colorado:									
Denver.....	285,000	6	9	6		1	7	10	3
Pueblo.....	43,900	2	1	0	0	0	1	0	0
New Mexico:									
Albuquerque.....	¹ 21,000	0	0	0	0	0	0	0	0
Utah:									
Salt Lake City.....	133,000	4	2	1	0	0	1	2	3
Nevada:									
Reno.....	¹ 12,665	1	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle.....	(²)		4						
Spokane.....	109,000		1						
Tacoma.....	106,000	2	2	1	0	0	5	0	0
Oregon:									
Portland.....	¹ 282,383	0	4	2	0	0	9	2	2
California:									
Los Angeles.....	(²)	9	31	13	2	0	6	12	0
Sacramento.....	73,400	1	2	1	0	0	2	0	1
San Francisco.....	567,000	6	9	2	0	0	3	2	2

¹ Estimated, July 1, 1925.² No estimate made.

City reports for week ended July 28, 1928—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND											
Maine:											
Portland.....	1	1	0	0	0	0	0	2	0	8	14
New Hampshire:											
Concord.....	0	0	0	0	0	1	0	0	0	0	7
Vermont:											
Barre.....	0	0	0	0	0	0	0	0	0	0	3
Burlington.....	0	0	0	0	0	0	0	0	0	0	4
Massachusetts:											
Boston.....	19	12	0	0	0	13	3	1	0	19	168
Fall River.....	1	0	0	0	0	2	1	0	0	2	17
Springfield.....	1	0	0	0	0	1	0	2	0	2	19
Worcester.....	2	2	0	0	0	2	0	0	0	0	37
Rhode Island:											
Pawtucket.....	0	2	0	0	0	0	0	0	0	0	10
Providence.....	2	6	0	0	0	5	0	0	0	1	61
Connecticut:											
Bridgeport.....	2	2	0	0	0	1	0	0	0	6	21
Hartford.....	2	0	0	0	0	2	0	0	0	5	32
New Haven.....	1	0	0	0	0	1	1	0	0	10	29
MIDDLE ATLANTIC											
New York:											
Buffalo.....	6		1				1				
New York.....	39	23	0	0	0	79	25	19	1	94	1,141
Rochester.....	3	0	0	0	0	1	0	0	0	3	57
Syracuse.....	3	0	0	0	0	3	0	0	0	4	38
New Jersey:											
Camden.....	0	0	0	0	0	0	1	3	0	1	39
Newark.....	5	1	0	0	0	12	1	0	0	33	92
Trenton.....	0	0	0	0	0	3	1	3	0	4	26
Pennsylvania:											
Philadelphia.....	23	12	0	0	0	0	8	4	0	97	461
Pittsburgh.....	11	12	0	0	0	9	2	5	1	34	129
Reading.....	0	0	0	0	0	1	0	0	0	19	21
EAST NORTH CENTRAL											
Ohio:											
Cincinnati.....	4	4	0	0	0	15	2	1	0	7	121
Cleveland.....	12	7	0	0	0	19	2	1	0	54	161
Columbus.....	2	0	1	1	0	6	1	0	0	23	63
Toledo.....	3	0	0	0	0	5	1	1	0	46	62
Indiana:											
Fort Wayne.....	0	0	0	0	0	1	0	0	1	0	18
Indianapolis.....	2	2	2	0	0	6	2	0	0	11	90
South Bend.....	0	0	0	0	0	0	0	0	0	1	14
Terre Haute.....	0	1	0	0	0	0	0	0	0	4	22
Illinois:											
Chicago.....	29	33	1	0	0	51	5	4	1	113	617
Springfield.....	1	0	0	0	0	2	0	0	0	6	21
Michigan:											
Detroit.....	26	21	2	0	0	24	4	0	0	162	212
Flint.....	3	4	0	1	0	2	1	0	0	6	20
Grand Rapids.....	3	0	1	0	0	1	1	1	0	8	23
Wisconsin:											
Kenosha.....	0	0	1	0	0	0	1	0	0	6	5
Milwaukee.....	7	7	1	0	0	6	0	0	0	74	96
Racine.....	1	2	0	0	0	0	0	0	0	7	9
Superior.....	1	4	1	0	0	0	0	0	0	0	5
WEST NORTH CENTRAL											
Minnesota:											
Duluth.....	3	5	1	0	0	1	0	0	0	1	14
Minneapolis.....	11	5	2	0	0	2	1	0	0	5	67
St. Paul.....	6	1	2	0	0	3	2	0	0	30	41
Iowa:											
Davenport.....	0	0	0	0			0	0		1	
Des Moines.....	2	0	0	1			0	0		0	29
Sioux City.....	0	0	0	0			0	1		5	
Waterloo.....	0	1	0	0			0	0		4	

City reports for week ended July 28, 1923—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
WEST NORTH CENTRAL—continued											
Missouri:											
Kansas City.....	2	4	0	0	0	11	2	1	1	12	99
St. Joseph.....	0	1	0	0	0	2	0	1	0	0	23
St. Louis.....	6	6	0	0	0	11	6	4	2	19	232
North Dakota:											
Fargo.....	1	2	0	0	0	1	0	1	0	0	5
Grand Forks.....	0	4	0	0	0	0	0	0	0	0	0
South Dakota:											
Aberdeen.....	0	0	0	0	0	0	0	0	0	0	0
Sioux Falls.....	0	4	0	0	0	0	0	0	0	0	7
Nebraska:											
Lincoln.....	0	1	1	1	0	0	0	0	0	0	9
Omaha.....	1	2	0	1	0	3	0	1	0	1	41
Kansas:											
Topeka.....	1	4	0	0	0	1	0	0	0	5	18
Wichita.....	1	0	0	1	0	1	1	3	0	32	3
SOUTH ATLANTIC											
Delaware:											
Wilmington.....	1	0	0	0	0	2	0	0	0	1	25
Maryland:											
Baltimore.....	6	4	0	0	0	12	8	1	1	135	184
Cumberland.....	0	1	0	0	0	0	0	0	0	0	9
Frederick.....	0	0	0	0	0	0	0	0	0	0	0
District of Col.:											
Washington.....	3	6	0	0	0	11	4	1	0	8	115
Virginia:											
Lynchburg.....	0	0	0	0	0	0	1	7	0	0	9
Norfolk.....	0	0	0	0	0	1	1	1	0	0	2
Richmond.....	2	1	0	0	0	4	2	1	0	1	56
Roanoke.....	0	0	0	0	0	0	1	0	1	0	19
West Virginia:											
Charleston.....	0	4	0	0	0	0	1	1	0	0	11
Wheeling.....	1	1	0	0	0	2	0	0	0	0	11
North Carolina:											
Raleigh.....	0	0	0	0	0	1	0	0	0	6	27
Wilmington.....	0	0	0	0	0	0	0	0	0	2	7
Winston-Salem.....	0	0	0	0	0	0	1	0	0	0	0
South Carolina:											
Charleston.....	0	0	0	0	0	3	1	0	1	0	23
Columbia.....	1	0	0	0	0	0	1	1	1	2	25
Greenville.....	0	0	0	0	0	0	2	0	0	1	6
Georgia:											
Atlanta.....	1	1	1	0	0	3	3	0	0	3	68
Brunswick.....	0	0	0	0	0	0	0	1	0	0	5
Savannah.....	0	2	0	0	0	3	2	2	0	2	41
Florida:											
Miami.....	1	0	0	0	0	0	0	2	0	2	36
St. Petersburg.....	0	0	0	0	0	0	0	0	0	0	5
Tampa.....	0	0	0	0	0	2	0	1	0	0	33
EAST SOUTH CENTRAL											
Kentucky:											
Covington.....	0	0	0	2	0	0	0	0	0	0	14
Louisville.....	1	4	0	0	0	5	5	4	1	4	139
Tennessee:											
Memphis.....	1	0	0	0	0	6	8	7	1	7	74
Nashville.....	1	2	0	2	0	3	7	5	1	3	50
Alabama:											
Birmingham.....	2	0	1	1	0	4	5	6	1	3	70
Mobile.....	0	0	0	0	0	0	1	0	0	0	16
Montgomery.....	0	0	0	0	0	0	2	2	0	0	0
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith.....	0	0	0	0	0	0	0	0	0	2	0
Little Rock.....	0	2	0	0	0	0	1	0	0	2	0

City reports for week ended July 28, 1928—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
WEST SOUTH CENTRAL—contd.											
Louisiana:											
New Orleans..	2	2	0	0	0	13	4	16	3	0	122
Shreveport....	0	0	0	0	0	0	1	4	0	3	24
Oklahoma:											
Oklahoma City	1	1	0	1	0	1	3	5	1	0	39
Texas:											
Dallas.....	2	1	1	0	0	0	4	4	0	17	32
Fort Worth....	1	1	1	1	0	1	3	0	0	0	33
Galveston....	0	0	0	0	0	0	0	0	0	0	16
Houston.....	1	0	0	0	0	2	1	0	1	0	80
San Antonio..	1	0	0	0	0	7	2	2	2	0	61
MOUNTAIN											
Montana:											
Billings.....	0	0	0	1	0	0	0	0	0	0	5
Great Falls...	0	0	0	1	0	1	0	1	0	0	9
Helena.....	0	0	0	0	0	1	0	0	0	0	6
Missoula.....	0	0	0	0	0	0	0	0	0	0	5
Idaho:											
Boise.....	0	0	1	0	0	0	0	0	0	0	2
Colorado:											
Denver.....	4	2	1	0	0	4	2	2	0	28	46
Pueblo.....	1	0	0	0	0	0	0	0	0	0	8
New Mexico:											
Albuquerque...	0	0	0	0	0	6	0	0	0	0	12
Utah:											
Salt Lake City.	1	1	1	0	0	1	1	0	0	5	32
Nevada:											
Reno.....	0	0	1	0	0	1	0	0	0	0	7
PACIFIC											
Washington:											
Seattle.....	2	-----	2	-----	-----	-----	0	-----	-----	-----	-----
Spokane.....	1	-----	3	-----	-----	-----	0	-----	-----	-----	-----
Tacoma.....	1	0	1	0	0	2	0	0	0	0	31
Oregon:											
Portland.....	2	1	6	20	0	2	1	1	0	0	76
California:											
Los Angeles...	9	16	4	0	0	0	4	2	0	49	249
Sacramento...	1	1	1	1	0	2	0	1	0	7	22
San Francisco..	4	4	0	0	0	10	2	2	0	12	140
Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)				
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths		
NEW ENGLAND											
Maine:											
Portland.....	1	1	0	0	0	0	0	0	0	0	
Massachusetts:											
Boston.....	0	0	0	1	2	0	1	5	0	0	
Connecticut:											
Bridgeport....	1	1	0	0	0	0	0	0	0	0	
MIDDLE ATLANTIC											
New York:											
New York.....	22	15	4	2	0	0	5	17	8	8	
Pennsylvania:											
Philadelphia...	0	0	0	0	1	0	0	2	1	1	
Pittsburgh....	0	0	0	1	0	0	0	0	0	0	

City reports for week ended July 28, 1928—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Cincinnati.....	0	0	0	0	0	0	0	1	0
Cleveland.....	1	1	0	0	0	0	1	2	0
Columbus.....	0	0	0	0	0	0	0	1	0
Toledo.....	1	1	0	0	0	0	0	0	0
Indiana:									
Terre Haute.....	1	0	0	0	0	0	0	0	0
Illinois:									
Chicago.....	5	3	0	0	2	2	2	0	0
Springfield.....	0	0	1	0	0	0	0	0	0
Michigan:									
Detroit.....	0	2	1	0	0	0	1	1	0
Wisconsin:									
Milwaukee.....	1	1	0	0	0	0	1	0	0
WEST NORTH CENTRAL									
Missouri:									
Kansas City.....	0	2	0	0	0	0	0	0	0
St. Louis.....	1	0	0	0	0	0	0	0	0
North Dakota:									
Fargo.....	0	0	0	0	0	0	0	2	0
SOUTH ATLANTIC									
Maryland:									
Baltimore.....	1	0	0	0	0	0	1	6	1
District of Columbia:									
Washington.....	0	0	0	0	1	1	1	0	0
North Carolina:									
Raleigh.....	0	0	0	0	0	3	0	0	0
South Carolina:									
Charleston ¹	0	0	0	0	1	0	0	0	0
Columbia.....	0	0	0	0	0	4	0	0	0
Greenville.....	0	0	0	0	1	0	0	0	0
Georgia:									
Atlanta.....	0	0	0	0	0	0	0	1	0
Brunswick.....	0	0	0	0	2	0	0	0	0
Savannah ²	0	0	0	0	6	5	0	0	0
Florida: ³									
Miami.....	0	0	0	0	2	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis.....	0	0	0	0	0	0	0	1	0
Nashville.....	0	0	0	0	1	1	0	0	0
Alabama:									
Montgomery.....	0	0	0	0	0	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock.....	0	0	0	0	0	1	0	0	0
Louisiana:									
New Orleans.....	0	0	0	0	4	2	1	0	0
Shreveport.....	0	0	0	0	0	1	0	0	0
Texas:									
Dallas.....	0	0	0	0	1	0	0	0	0
Fort Worth.....	0	0	0	0	0	2	1	0	0
Houston.....	1	0	0	0	2	2	0	0	0
MOUNTAIN									
Colorado:									
Denver.....	2	1	0	0	0	0	0	0	0
Pueblo.....	1	0	0	0	0	0	0	0	0
New Mexico:									
Albuquerque.....	0	0	1	1	0	0	0	1	0
PACIFIC									
Washington:									
Tacoma.....	0	0	0	0	0	0	0	2	0
Oregon:									
Portland.....	1	1	0	0	0	0	0	1	0
California:									
Los Angeles.....	1	0	0	0	0	0	0	2	0
Sacramento.....	1	1	0	0	2	0	0	0	0
San Francisco.....	1	0	0	0	0	0	0	0	0

¹ Dengue: 1 case at Charleston, S. C.² Typhus fever: 3 cases; 2 at Savannah, Ga., and 1 at Tampa, Fla.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended July 28, 1928, compared with those for a like period ended July 30, 1927. The population figures used in computing the rates are approximate estimates as of July 1, 1928 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 31,657,000 in 1928 and 31,050,000 in 1927. The 95 cities reporting deaths had nearly 30,961,000 estimated population in 1928 and nearly 30,370,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, June 24 to July 28, 1928—Annual rates per 100,000 population compared with rates for the corresponding period of 1927¹

DIPHTHERIA CASE RATES

	Week ended—									
	June 30, 1928	July 2, 1927	July 7, 1928	July 9, 1927	July 14, 1928	July 16, 1927	July 21, 1928	July 23, 1927	July 28, 1928	July 30, 1927
101 cities.....	¹ 113	140	86	121	83	114	69	¹ 92	¹ 68	¹ 94
New England.....	¹ 65	88	62	91	80	133	46	63	46	91
Middle Atlantic.....	186	212	147	196	116	164	90	105	¹ 83	103
East North Central.....	116	119	79	102	82	93	77	108	64	102
West North Central.....	53	59	29	38	53	53	53	53	58	55
South Atlantic.....	37	143	51	85	58	83	46	¹ 87	¹ 63	88
East South Central.....	10	20	15	41	5	35	25	25	50	30
West South Central.....	48	120	16	50	40	70	56	124	68	70
Mountain.....	35	126	27	108	71	81	35	99	62	117
Pacific.....	74	76	49	86	72	112	54	65	¹ 57	¹ 121

MEASLES CASE RATES

101 cities.....	¹ 490	271	322	198	264	154	163	¹ 108	¹ 130	¹ 58
New England.....	¹ 898	342	722	300	777	242	503	198	651	170
Middle Atlantic.....	653	200	455	154	349	122	203	92	¹ 129	45
East North Central.....	474	206	266	182	215	110	145	90	83	47
West North Central.....	382	204	171	93	117	105	62	48	29	40
South Atlantic.....	361	446	235	276	124	220	89	¹ 140	¹ 72	69
East South Central.....	150	81	65	76	200	61	80	25	80	46
West South Central.....	32	149	20	112	24	103	4	54	0	58
Mountain.....	398	493	354	134	239	170	186	99	80	63
Pacific.....	195	773	38	538	26	447	20	279	¹ 54	¹ 66

SCARLET FEVER CASE RATES

101 cities.....	¹ 105	128	74	99	52	84	56	¹ 64	¹ 42	¹ 63
New England.....	¹ 197	221	122	174	87	130	78	100	57	107
Middle Atlantic.....	100	148	58	123	37	91	33	50	¹ 25	39
East North Central.....	116	131	96	91	71	89	88	75	56	87
West North Central.....	113	89	90	91	35	71	72	79	60	79
South Atlantic.....	84	81	60	54	35	56	26	¹ 40	¹ 36	40
East South Central.....	65	56	75	46	55	30	45	30	30	41
West South Central.....	40	17	36	41	28	37	32	45	20	25
Mountain.....	71	287	27	117	62	224	44	99	27	152
Pacific.....	87	86	61	60	74	50	79	91	¹ 71	¹ 66

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1928, and 1927, respectively.

² Hartford, Conn., not included.

³ Norfolk, Va., not included.

⁴ Buffalo, N. Y., Winston-Salem, N. C., Seattle, Wash., and Spokane, Wash., not included.

⁵ Seattle, Wash., and Spokane, Wash., not included.

⁶ Buffalo, N. Y., not included.

⁷ Winston-Salem, N. C., not included.

Summary of weekly reports from cities, June 24 to July 28, 1928—Annual rates per 100,000 population compared with rates for the corresponding period of 1927—Continued

SMALLPOX CASE RATES

	Week ended—									
	June 30, 1928	July 2, 1927	July 7, 1928	July 9, 1927	July 14, 1928	July 16, 1927	July 21, 1928	July 23, 1927	July 28, 1928	July 30, 1927
101 cities.....	10	18	6	16	7	9	4	10	2	5
New England.....	20	0	0	0	0	0	0	0	0	0
Middle Atlantic.....	0	0	0	0	0	0	0	0	0	0
East North Central.....	9	21	6	15	7	17	3	13	1	9
West North Central.....	31	38	16	34	12	14	14	12	4	6
South Atlantic.....	2	18	7	23	0	9	5	12	7	4
East South Central.....	10	35	5	51	5	25	10	35	25	10
West South Central.....	8	12	4	0	4	8	4	8	0	12
Mountain.....	142	63	44	45	88	36	18	117	18	27
Pacific.....	20	73	15	73	31	13	10	21	3	10

TYPHOID FEVER CASE RATES

101 cities.....	16	15	14	16	18	21	18	20	23	21
New England.....	25	7	9	14	14	19	7	16	11	9
Middle Atlantic.....	8	6	9	8	9	11	12	8	17	13
East North Central.....	6	5	4	5	11	8	7	9	5	11
West North Central.....	12	8	8	10	16	16	12	14	23	16
South Atlantic.....	33	22	19	34	32	43	30	50	31	35
East South Central.....	100	132	70	162	60	152	100	122	120	117
West South Central.....	40	74	64	17	64	74	88	54	104	54
Mountain.....	27	9	9	18	9	27	0	27	27	72
Pacific.....	8	16	26	10	23	8	18	16	17	24

INFLUENZA DEATH RATES

95 cities.....	7	3	8	3	5	3	5	3	4	3
New England.....	5	5	9	2	5	5	9	0	5	2
Middle Atlantic.....	6	2	10	4	3	2	4	4	2	4
East North Central.....	5	3	3	3	4	1	5	2	6	1
West North Central.....	8	2	8	0	4	2	2	2	2	0
South Atlantic.....	5	5	6	4	7	5	7	2	5	2
East South Central.....	37	0	21	16	5	5	0	16	16	11
West South Central.....	12	4	25	0	25	8	4	0	12	8
Mountain.....	18	9	18	0	18	9	9	9	9	0
Pacific.....	3	3	0	3	10	7	3	3	0	3

PNEUMONIA DEATH RATES

95 cities.....	75	73	70	50	60	56	56	56	44	49
New England.....	67	60	51	60	67	56	55	56	34	49
Middle Atlantic.....	89	71	89	63	72	61	69	59	53	56
East North Central.....	63	80	67	49	54	45	57	55	29	42
West North Central.....	47	77	37	54	26	31	26	21	20	17
South Atlantic.....	72	56	56	58	49	61	51	73	67	43
East South Central.....	110	101	68	85	78	69	52	48	105	48
West South Central.....	70	72	57	64	70	68	53	64	57	85
Mountain.....	71	90	53	99	62	63	80	45	80	36
Pacific.....	81	69	78	55	54	97	81	72	10	79

¹ Hartford, Conn., not included.

² Norfolk, Va., not included.

³ Buffalo, N. Y., Winston-Salem, N. C., Seattle, Wash., and Spokane, Wash., not included.

⁴ Seattle, Wash., and Spokane, Wash., not included.

⁵ Buffalo, N. Y., not included.

⁶ Winston-Salem, N. C., not included.

⁷ Buffalo, N. Y., Winston-Salem, N. C.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1928, and 1927, respectively

Groups of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1928	1927	1928	1927
Total.....	101	95	31,657,000	31,050,300	30,960,700	30,369,500
New England.....	12	12	2,274,400	2,242,700	2,274,400	2,242,700
Middle Atlantic.....	10	10	10,732,400	10,594,700	10,732,400	10,594,700
East North Central.....	16	16	7,991,400	7,820,700	7,991,400	7,820,700
West North Central.....	12	10	2,683,500	2,634,500	2,566,400	2,518,500
South Atlantic.....	21	21	2,981,900	2,890,700	2,981,900	2,890,700
East South Central.....	7	6	1,048,300	1,028,300	1,000,100	980,700
West South Central.....	8	7	1,307,600	1,260,700	1,274,100	1,227,800
Mountain.....	9	9	591,100	581,600	591,100	581,600
Pacific.....	6	4	2,046,400	1,996,400	1,548,900	1,512,100

FOREIGN AND INSULAR

THE FAR EAST

Report for the week ended July 21, 1928.—The following report for the week ended July 21, 1928, was transmitted by the eastern bureau of the health section of the secretariat of the League of Nations, located at Singapore, to the headquarters at Geneva:

Plague, cholera, or smallpox was reported present in the following ports:

PLAGUE
India.—Bassein, Rangoon, Cochin.
French Indo-China.—Pnompenh.

CHOLERA
India.—Bombay, Calcutta, Madras, Vizagapatam, Rangoon.
Siam.—Bangkok.
French Indo-China.—Pnompenh, Saigon.
China.—Canton.
Persia.—Jask.

SMALLPOX
India.—Bombay, Calcutta, Madras, Rangoon, Negapatam, Moulmein, Vizagapatam.
French India.—Pondicherry.
Dutch East Indies.—Belawan Deli, Palembang.
China.—Hong Kong.
Kwantung.—Dairen.

Returns for the week ended July 21 were not received from Samarinda, Dutch East Indies.

BOLIVIA

Valle Grande—Plague.—Under date of August 1, 1928, an outbreak of plague was reported in Valle Grande, Bolivia. The region is mountainous, sparsely settled, and distant from the frontiers of Bolivia. The Government has organized a medical commission to combat the disease.

CANADA

Provinces—Communicable diseases—Week ended July 21, 1928.—The Canadian Ministry of Health reports cases of certain communicable diseases from seven Provinces of Canada for the week ended July 21, 1928, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Cerebrospinal fever.....				1	1			2
Influenza.....	4			5				9
Poliomyelitis.....				2	1	2		5
Smallpox.....			12	6			1	19
Typhoid fever.....	1	1	11	17	2		2	34

Quebec Province—Communicable diseases—Three weeks ended July 28, 1928.—The Bureau of Health of the Province of Quebec reports cases of certain communicable diseases for the three weeks ended July 28, 1928, as follows:

Disease	Weeks ended—			Disease	Weeks ended—		
	July 14, 1928	July 21, 1928	July 28, 1928		July 14, 1928	July 21, 1928	July 28, 1928
Chicken pox.....	10	4	12	Polio-myelitis.....			1
Diphtheria.....	30	28	17	Scarlet fever.....	32	20	25
German measles.....	1			Smallpox.....	16	12	13
Influenza.....	2	5		Tuberculosis.....	59	53	37
Measles.....	36	13	18	Typhoid fever.....	14	7	6
Mumps.....	2		3	Whooping cough.....		4	3

CZECHOSLOVAKIA

Communicable diseases—May, 1928.—During the month of May, 1928, communicable diseases were reported in Czechoslovakia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax.....	4		Paratyphoid fever.....	68	1
Cerebrospinal meningitis.....	24	13	Puerperal fever.....	36	15
Diphtheria.....	732	50	Scarlet fever.....	1,515	29
Dysentery.....	12		Trachoma.....	352	
Malaria.....	137		Typhoid fever.....	402	45

HAWAII TERRITORY

Island of Hawaii—Plague, plague rodent—July 19–27, 1928.—Under date of August 8, 1928, a report was received of a plague-infected rodent at Kuhuiahae, island of Hawaii, July 19, 1928, and a death from plague at Paauilo, island of Hawaii, July 27, 1928.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

CHOLERA—Continued

[C indicates cases; D, deaths; P, present]

Place	Week ended—													
	May, 1928				June, 1928				July, 1928				Aug. 4, 1928	
	12	19	26		2	9	16	23	30	7	14	21	28	
Indo-China—Continued.														
Tourane.....								1	1					
Kwangchow-Wan (see table below).														
Persian Gulf: Island of Henjan.....														
Philippine Islands:														
Cebu port.....												1		
Manila.....														
Siam.....	200	205	201	349	50	81	51	49	43	60	58	35	10	
Manila.....	139	214	218	234	30	50	36	30	30	45	39	29	7	
Ayudhya.....							2							
Bangkok.....	101	60	74	14	11	8	3	3	1	3	5	1		
Trad.....	66	36	33	35	9	7	4		2	2	2	1		
Straits Settlements: Singapore.....	3		2	1				1						
On vessel:	1													
S. S. Hawaii Maru at Singapore from Sai- gon, French Indo-China.....			11											
July-Sep- tember, 1927	3,179	370	267	73	40	17	11	18	26	13	22	8	9	
October- Decem- ber, 1927	251	337	54	111	147	43	102	51	34	47	20	28	82	
Indo-China (French) (see also table above):	469	391	295	444	698	277	316	240	140	139	125	143	109	
Annam.....	246	77	1											
Cambodia.....	1,297	3												
Cochin-China.....	16													
Laos.....														
Tunkin.....														
Kwangchow-Wan.....														
April, 1928	1-10	11-20	21-30	1-10	11-20	21-30	1-10	11-20	21-30	1-10	11-20	21-30	July 1-10, 1928	
May, 1928	1-10	11-20	21-30	1-10	11-20	21-30	1-10	11-20	21-30	1-10	11-20	21-30	June, 1928	
June, 1928	1-10	11-20	21-30	1-10	11-20	21-30	1-10	11-20	21-30	1-10	11-20	21-30	July 1-10, 1928	
July, 1928	1-10	11-20	21-30	1-10	11-20	21-30	1-10	11-20	21-30	1-10	11-20	21-30	Aug. 1-10, 1928	
Indo-China (French) (see also table above):														
Annam.....	3,179	370	267	73	40	17	11	18	26	13	22	8	9	
Cambodia.....	251	337	54	111	147	43	102	51	34	47	20	28	82	
Cochin-China.....	469	391	295	444	698	277	316	240	140	139	125	143	109	
Laos.....	246	77	1											
Tunkin.....	1,297	3												
Kwangchow-Wan.....	16													

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place	Week ended—																	
	Jan. 15- Feb. 11, 1928			Feb. 12- Mar. 10, 1928	Mar. 11- Apr. 7, 1928	Apr. 8- May 5, 1928	May, 1928					June, 1928				July, 1928		
	12	19	26	2	9	16	23	30	7	14	21	28						
Canary Islands—Continued.																		
Tenerife.....	C	10																
	D	4																
Ceylon: Colombo.....	C	3	11	7		1			1	2								
	D	2	6	5		1			1	2								
Plague-infected rats.....		5																
China:																		
Amoy.....	C								1	1	2	1						
Hong Kong.....	C												1					
Dutch East Indies:																		
Celebes—Makassar.....	C	8	1															
	D	5																
Java.....	C	737	484															
Batavia and West Java.....	C	137	103	50	47	25	17	9	14	22	16	8						
	D	135	103	50	47	25	17	9	14	22	16	8						
Plague-infected rats.....				3	7	1	4	2	2	1			1					
East Java and Madura.....	C	7		4	4													
	D	7		4	4													
Kedee Residency.....	C			1	1													
Surabaya Residency.....	C			1	1													
Beander (see also table below):																		
Alasal.....	C																	
Alexandria.....	C	2	1						1					2				
	D	2	1						2									
Assiout Province.....	C																	
Beni-Souef.....	C				12	4	14	34	17	14	3	4	4	11	3	6		
	D				3	4	6	8	5	7		2	2	3	5	1		
Maghagha District.....	C				1													
	D				1													
Menufa.....	C							6	5									
	D								2									

Place	October-December, 1927	January, 1928	February, 1928	March, 1928	April, 1928	May, 1928	June, 1928
Algiers (see also table above):							
Algeria.....	2						
Angola.....	3						
British East Africa (see also table above):							
Kenya.....	62	26	24	19	17	11	58
Ecuador: Guayaquil.....	18	4	6	10	5	1	5
Plague-infected rats:							
Indo-China (see also table above):	31	23	31	21	1	1	2
Kwazulu Natal.....	10	7			9	16	104
Madagascar (see also table above):							
Ambohitra Province.....	602	383	342	171	99	104	104
Antidraibe Province.....	26	108	67	59	25	7	
Antidraibe Province.....	17	108	66	52	33	5	
Antidraibe Province.....	103	117	108	54	34	4	
Itasy Province.....	108	117	108	54	34	4	
Itasy Province.....	104	33	33	3	1		
Itasy Province.....	94	29	17	12			
Itasy Province.....	98	19	25	12			
Itasy Province.....	83	19	24	12			
Madagascar—Continued.							
Tammarive Province.....	408	155	123	70	34		
Nigeria (see also table above):	234	129	102	61	30		
Peru.....	63	16	16				
Peru.....	24	16	41	52			
Peru.....	11		14	9			
Peru.....	3						
Peru.....	2	6					
Peru.....	3						
Senegal (see also table above):							
Rufisque.....		5	17	8	31	216	101
Rufisque.....			13	4	40	117	29
Thior.....						0	22
Thior.....						30	72
Thior.....						23	44
Thior.....						51	174
Tiavouane.....						105	160
Tiavouane.....						28	57
Tiavouane.....							90
Syria: Beirut (see also table above):	2						

PLAGUE RATS ON VESSELS

2. *Modeni* at Göteborg, Sweden, from Bahia and Buenos Aires via Cape Verde Islands, December 22, 1927.
 3. *Gydenre* at Landskrona, Sweden, from Rosario via Canary Islands, January 22, 1928.
 4. *Dryden* at Liverpool from La Plata River ports, January 26, 1928.
 5. *S. Sicily* at Liverpool from Buenos Aires and Rosario, June 6, 1928, 7 plague-infected rats.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place	Week ended—														
	May, 1928					June, 1928					July, 1928				
	12	19	26	2	9	16	23	30	7	14	21	28			
Great Britain:															
England and Wales.....	1,530	1,473	1,341	1,344	319	336	258	286	305	282	230	219	182	177	173
Birmingham.....	44	3	3	1	2	7	2	6	0	2	3	1	2	1	
Bradford.....	24	12	19	14	4	1	4	1	1						
Bristol.....	3	4	12	17	4	1	4	1							
Cardiff.....			3	3											
Castletord.....		4	36	69	11	6	4	3	5	4		9	2	5	4
Hull.....												1	1	20	3
Leeds.....	3	9	14	6					3	4	1			1	
Liverpool.....															
London.....	4	14	17	42	5	10	5	5	49	24	11	12	4	3	9
Manchester.....	25	12	8	4	1	6	3	2	3	2		1		28	
Newcastle-on-Tyne.....	27	11	9	4	1	1	2	2	2	1			2	1	
Nottingham.....	27	11	13	17	5	10		5	2	1		1	1		
Sheffield.....	6	6	1	14	2			2	1		7	1		3	
Stoke-on-Trent.....	1	15	12	32	9	8	6	1	4	2				1	
Weymouth.....															
Greece (see table below).															
Hedjaz.....	35	115						6	3		11		8		
India.....	23	46						2			1		1		
Bombay.....	17,777	18,850	24,034	30,436	6,558	5,978	5,124	3,899	4,608						
Bombay.....	3,700	3,826	5,540	6,672	1,334	1,358	1,383	971	1,051						
Bombay.....	61	149	218	200	46	37	26	27	19	15	20	17		27	11
Bombay.....	24	73	120	118	25	22	18	13	15	15	12	11		16	6
Calcutta.....	58	71	134	171	41	29	31	29		22	23	16		15	11
Calcutta.....	34	50	104	130	30	26	23	22		16	20	14		10	8
Karachi.....		1	1	2			3								
Karachi.....															
Madras.....	74	100	183	169	17	22	11	9	6	9	7	13	10	11	8
Madras.....	8	19	29	38	5	5	3	5	3	1	2		4	3	4
Moulmein.....												1		1	1
Moulmein.....															
Nagapatam.....	8	3		7	3	4	1					4	6	2	8
Nagapatam.....	3														
Rangoon.....	275	377	320	107	15	8	6	7	2	9	2	3		2	1
Rangoon.....	64	104	102	69	4	2	2	5	2	3	1	2		1	4

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALL.POX--Continued

(C indicates cases; D, deaths; P, present)

[illegible]

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

(C indicates cases; D, deaths; P, present)

[illegible]

